

Multikraft Wine Grape Case Study 2022-2023 Pemberton, WA



Overview – Aim

Commercial comparison

To evaluate the effectiveness of a vineyard program including Multikraft probiotics vs a conventional grower standard synthetic program, in a commercial vineyard, at the same cost per hectare for both treatments.

Scientific comparison – completed by Kaylx

The evaluate whether the Multikraft probiotics are effective in outcompeting powdery mildew and botrytis vs a conventional grower standard synthetic program, in multiple replicates at a commercial vineyard.

Program Outline

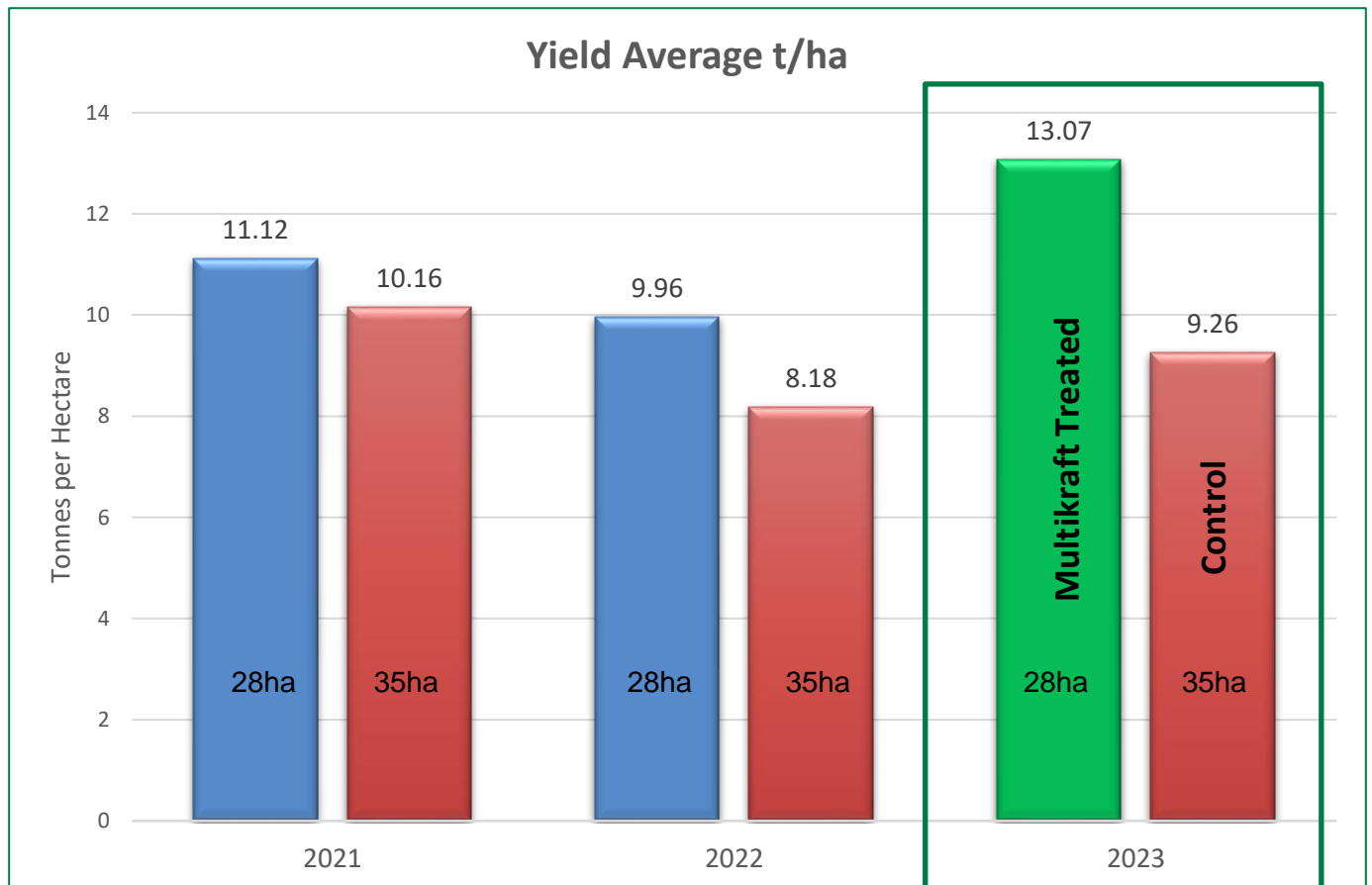
- Grapes Chardonnay Pemberton WA 2023 (Kaylx Replicated)
- Multikraft soil program applied via fertigation
- Multikraft foliar application applied as per grower standard in commercial comparison
- Multikraft foliar application applied via hand spray in scientific comparison (Kaylx Replicated)
- Multikraft treated area 28ha (Commercial)
- Control area without Multikraft treatment 35ha (Rest of the farm)
- Yield results were compared to the previous 2 years data
- Additional observations were made in commercial application of Multikraft treated programs in Pinot and Sav Blanc varieties
- All areas under commercial management

Key Findings

- Significant increase in Multikraft treated yields
- Comparable control of incidence and severity of disease pressure
- Program costs comparable – Multikraft is significantly more profitable vs grower standard
- Significant increase in nutrient uptake and utilisation

Yield Results – Multikraft Treated area vs the rest of the farm

- 41.1% Yield Increase in Multikraft treated vs Control in 2023



- 2023 Data compares the Multikraft treated commercial trial (28ha) to the rest of the farm (35ha) that used the grower std synthetic products
- All 2021 and 2022 utilised a commercial vineyard program (Grower Std) using synthetic products

Yield Results – Commercial Gross Margin per ha

Treatments	Avg Yield Increase	Avg Grape Price	Gross Margin (Profitability)
Multikraft 2023 vs Rest of Vineyard 2023	3.81t/ha	\$1,880/t	\$7,162.80/ha
Multikraft 2023 vs Same Blocks 2022	3.11t/ha	\$1,880/t	\$5,846.80/ha

Important Note

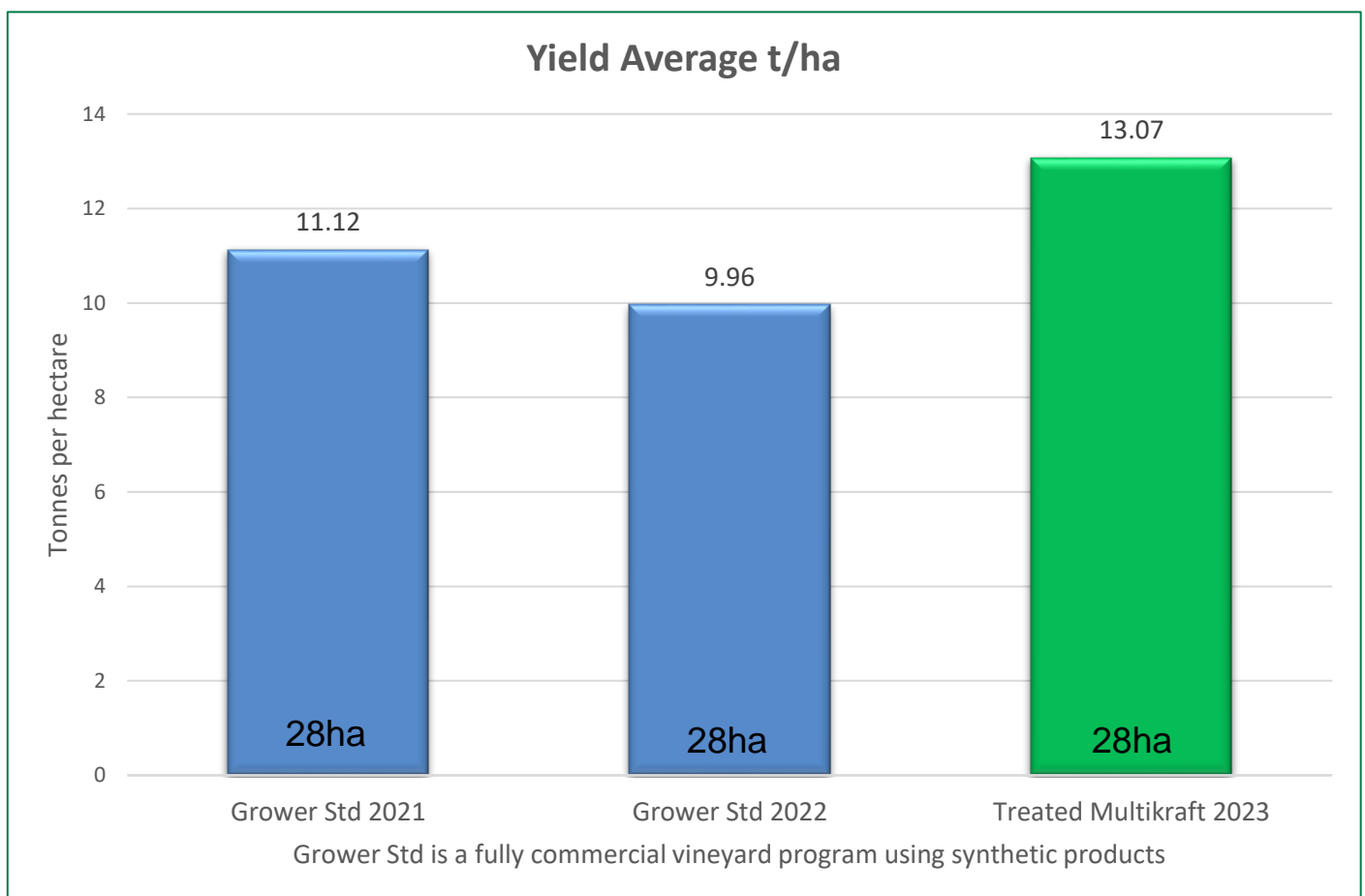
- Grower standard program vs Multikraft program is the **same cost per ha**.
- Quality of fruit was **better** in the Multikraft blocks.



Commercial comparison

Yield Results – Multikraft treated area only

- 31.2% Yield Increase on 2022 vintage
- 17.5% Yield Increase on 2021 vintage

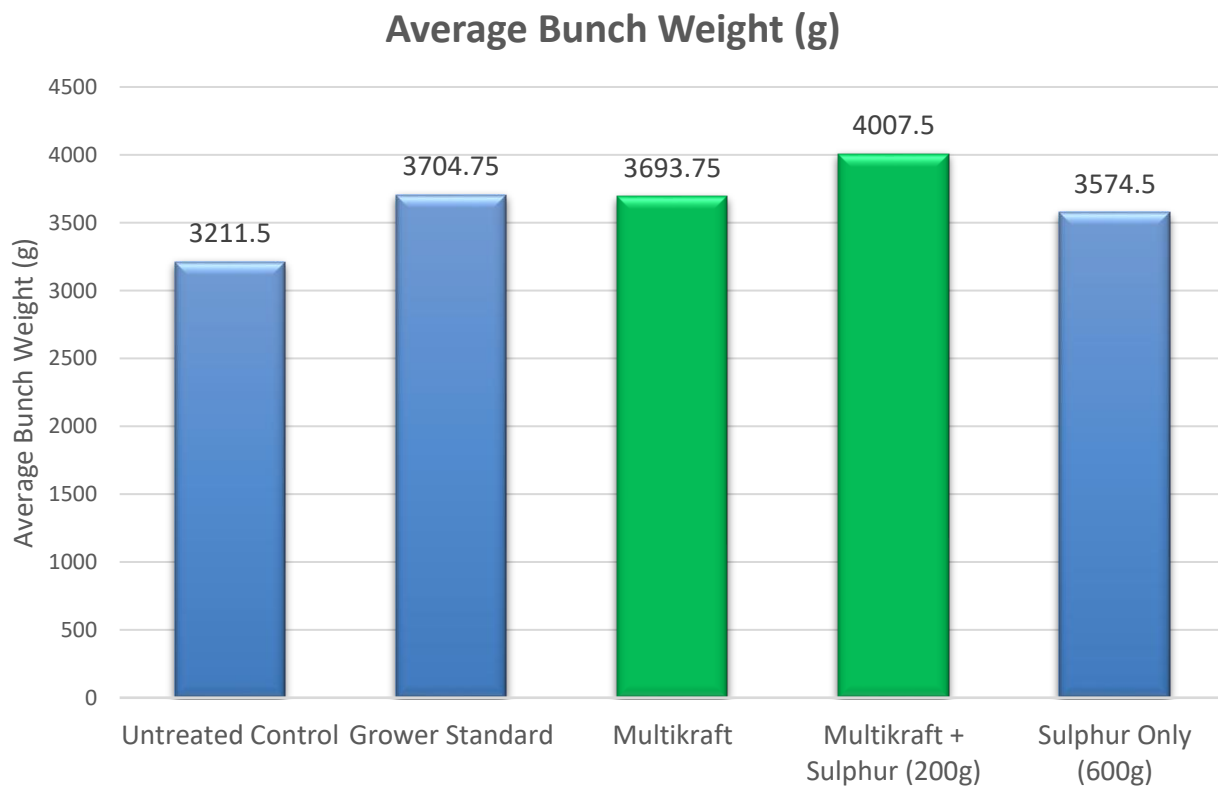


- 3 years of yield data to compare the impact of the Multikraft program in 2023 on 28ha commercial trial block.
- 2021 and 2022 utilised a commercial vineyard program (Grower Std) using synthetic products.

Scientific comparison

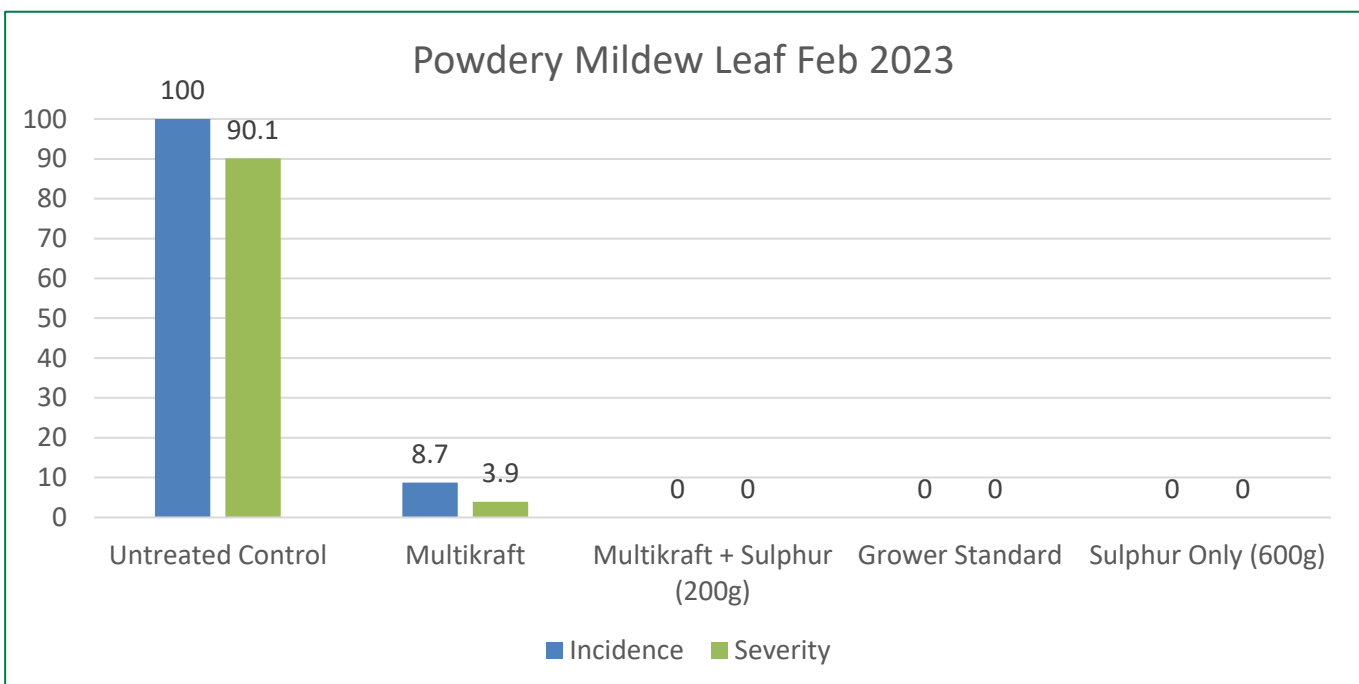
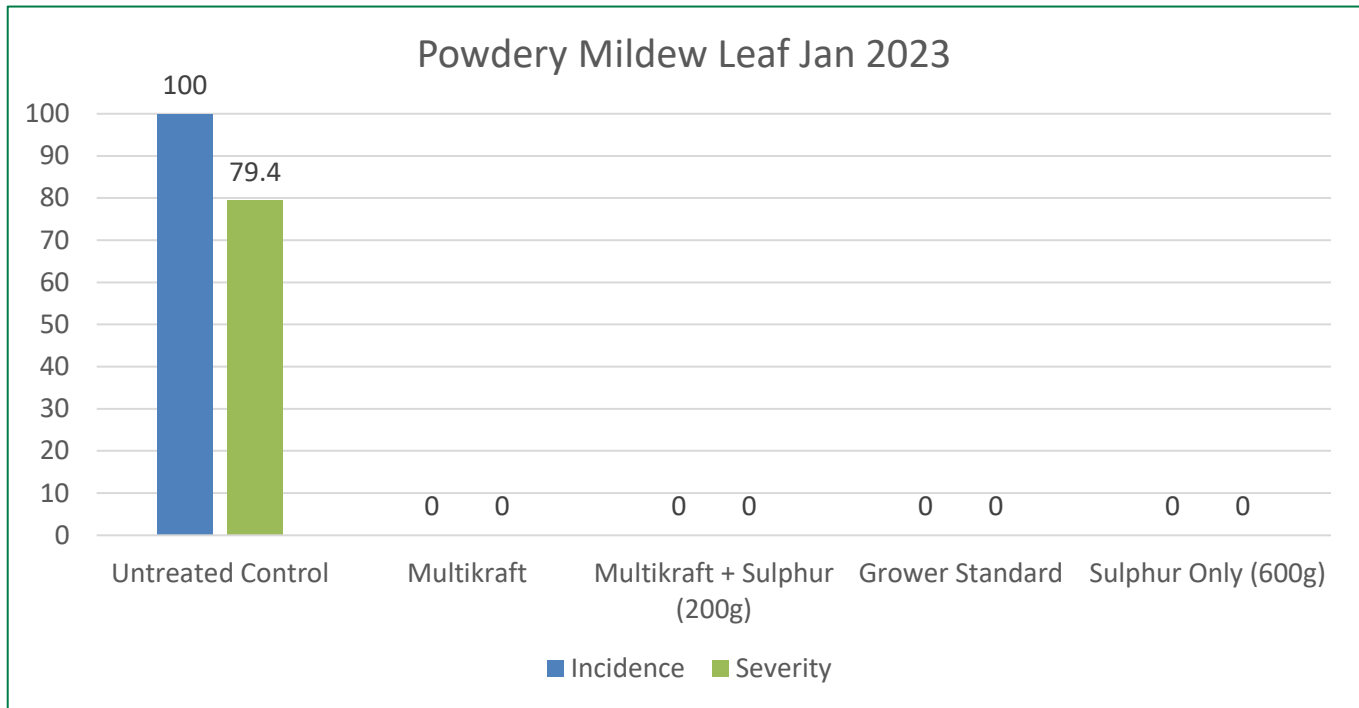
Average Bunch Weights – Kaylx Trial Replicates

4 replicates recorded from 17 February 2023 to 8 March 2023



Powdery Mildew Leaf – Replicated Trial Data Kalyx

Trial variety Chardonnay



Powdery Mildew Leaf – Replicated Trial Summary Kaylx

Trial variety Chardonnay – Photo taken 1 March 2023

- The Grower Std, Sulphur (600g), and Multikraft plus Sulphur (200g) programs provided total control of leaf powdery mildew.
- The photo below shows control of leaf powdery mildew from Multikraft only program. (Photo taken several weeks after final spray application).
- The leaf canopy was not managed (plucked) in the replicated area covering some of the grape bunches from January.

Multikraft (only) Treated

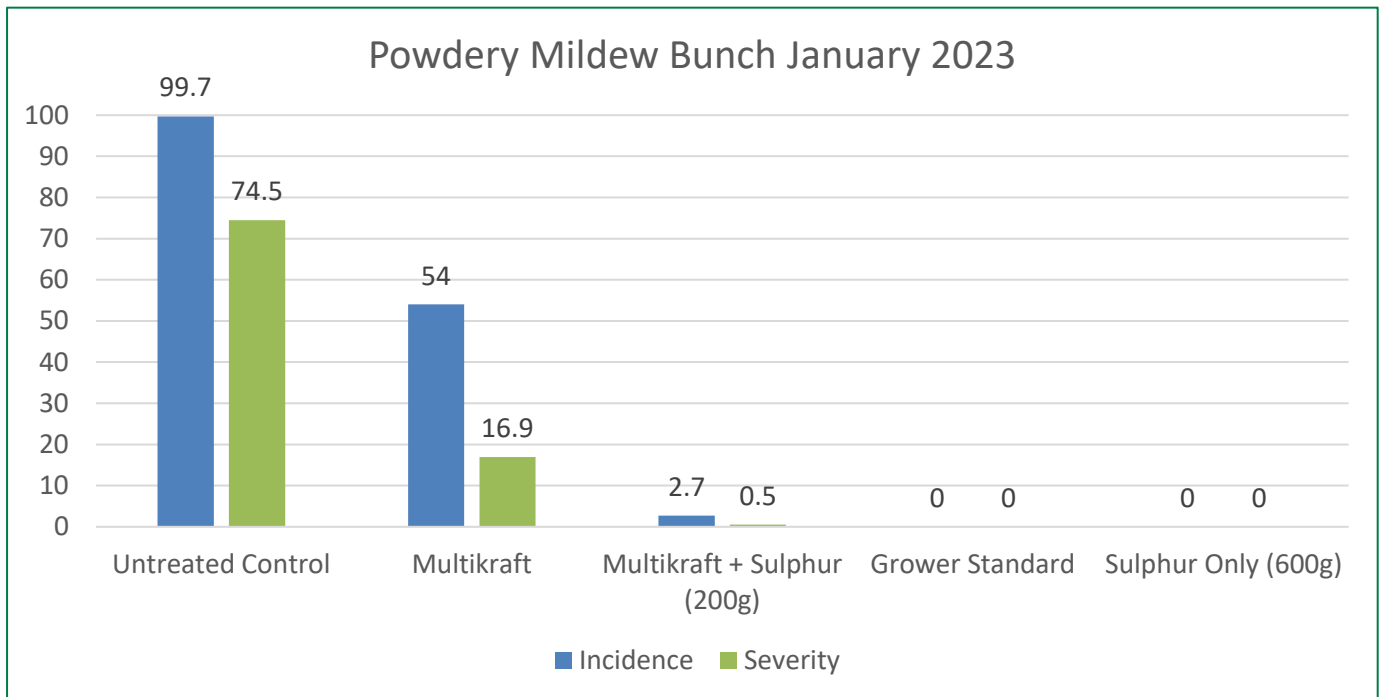


Control

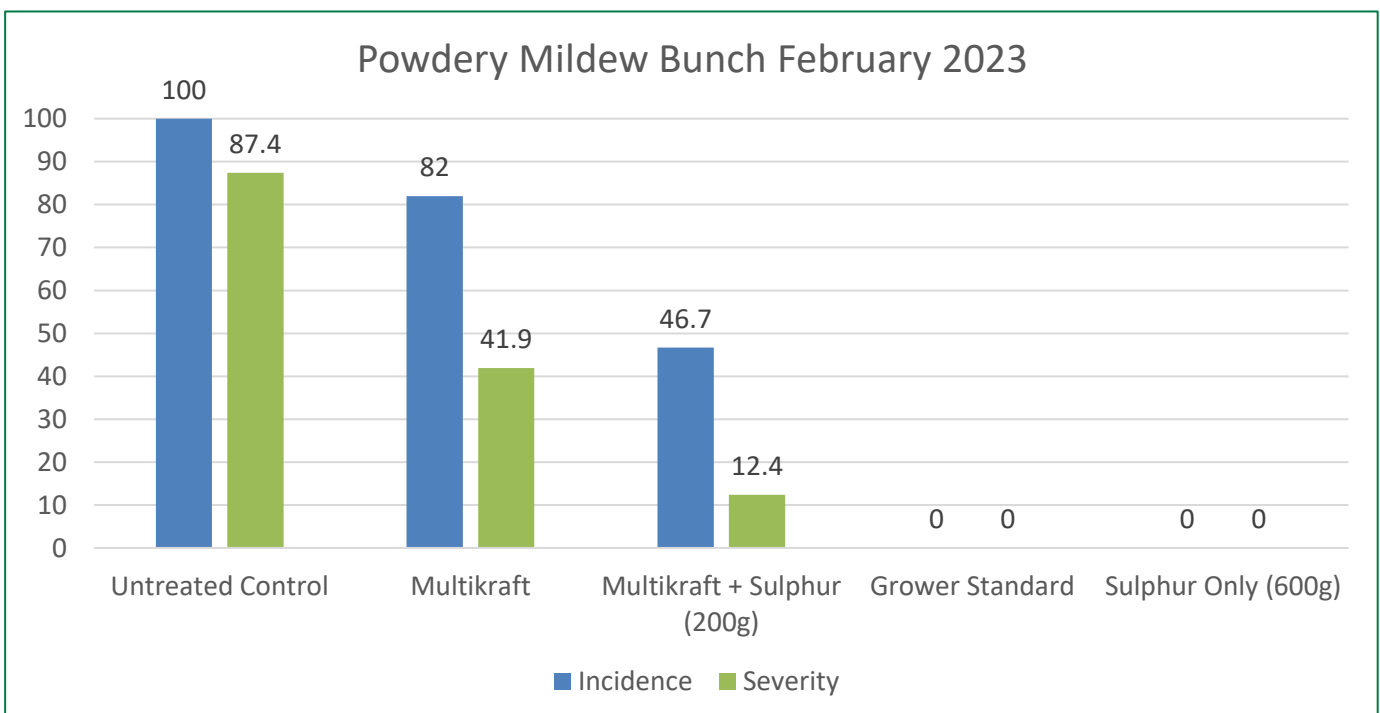


Powdery Mildew Bunch – Replicated Trial Data Kalyx

Trial variety Chardonnay



Unlike in the commercial evaluation, the replicated area was not leaf plucked and as the canopy got bigger and denser, coupled with the massive powdery pressure, the bunches in the Multikraft replicates started to get some powdery mildew. This emphasizes the importance of spray coverage and canopy management to maximise results.



Powdery Mildew Bunch – Replicated Trial Summary Kaylx

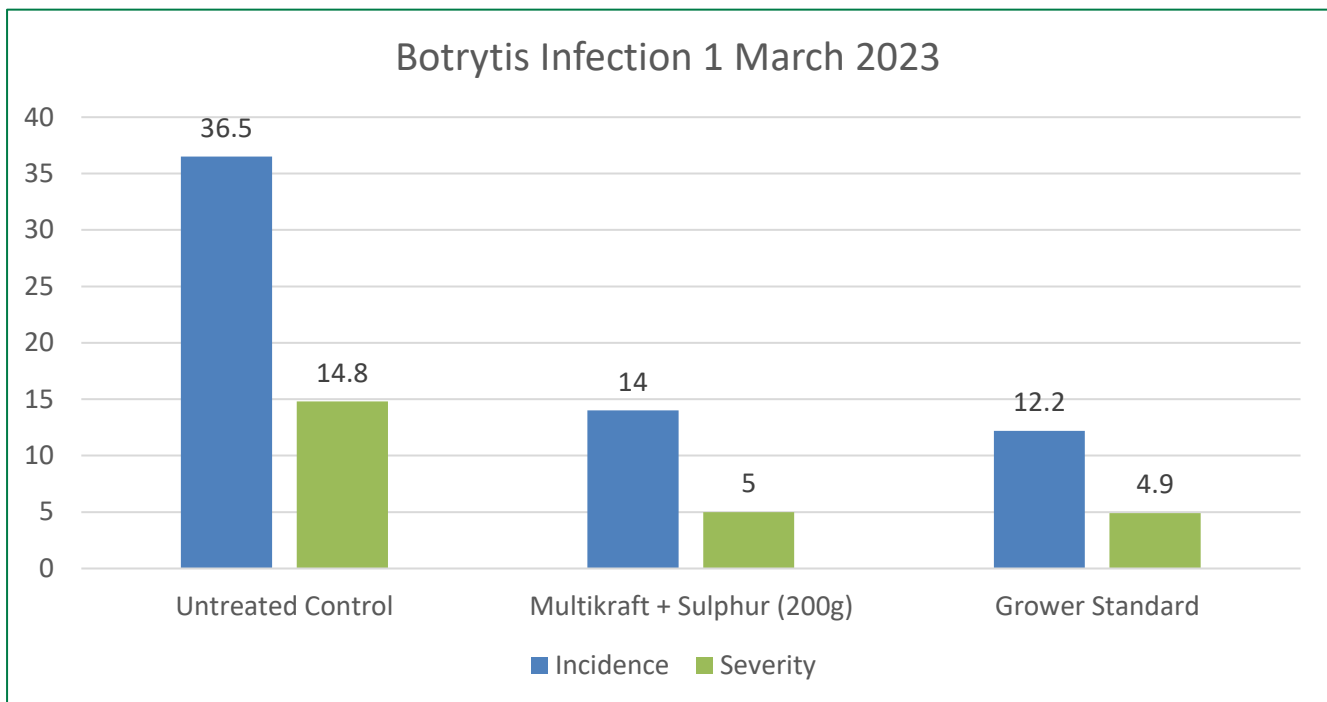
Trial variety Chardonnay – Photo taken 10th January 2023

- The Grower Std and Sulphur (600g) programs provided total control of bunch powdery mildew.
- Multikraft plus Sulphur (200g) program was the next most effective,
- Picture below was taken on the 10th January and is of Multikraft only program vs Untreated program from vines side by side.
- Multikraft works as a prophylactic rather than systemically, meaning the contact of product with the desired treatment area is very important and a good spray coverage and leaf plucking is essential.



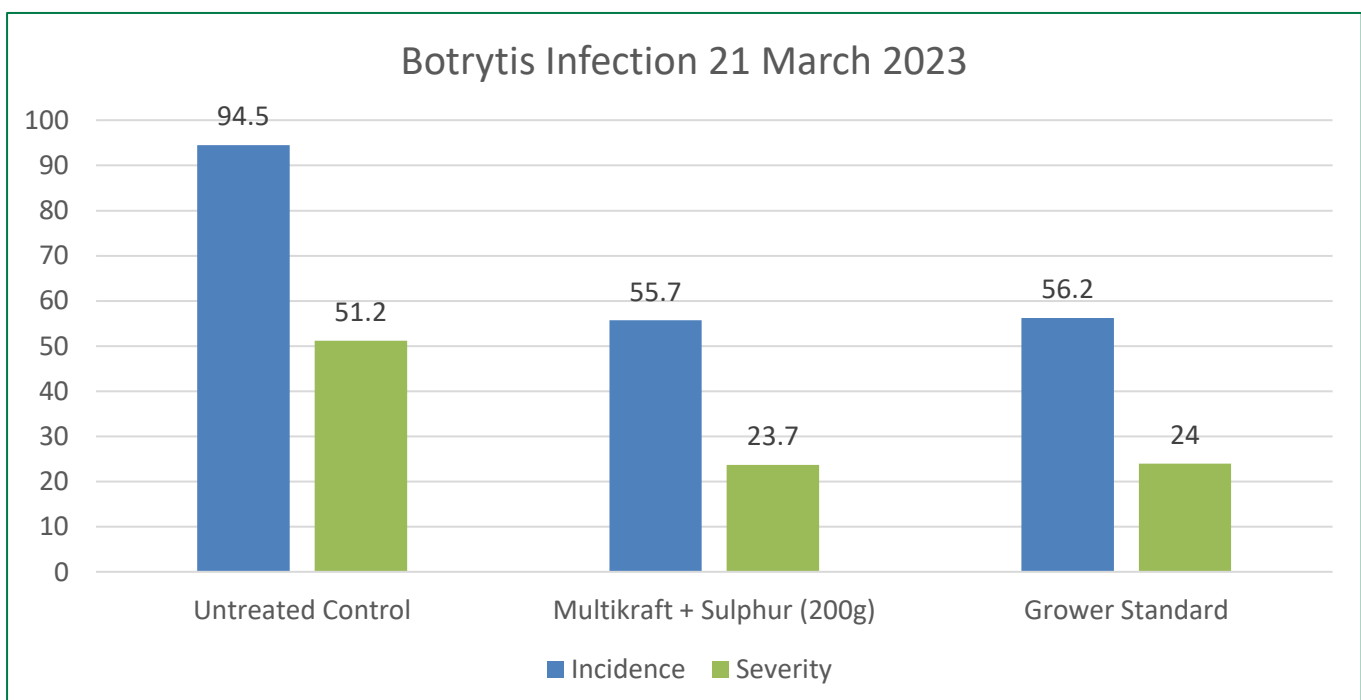
Multikraft Only Treatment.

Botrytis Infection– Replicated Trial Data Kalyx



The Botrytis in this vineyard begins at flowering before the leaf canopy is fully formed, allowing for good contact of the Multikraft products before the disease express's itself through March as the grapes matured.

Multikraft was as effective as the grower standard program.



Botrytis Infection – Replicated Trial Summary Kaylx

Photos taken 30th March 2023

1. Untreated Control



2. Multikraft + Sulphur (200g)

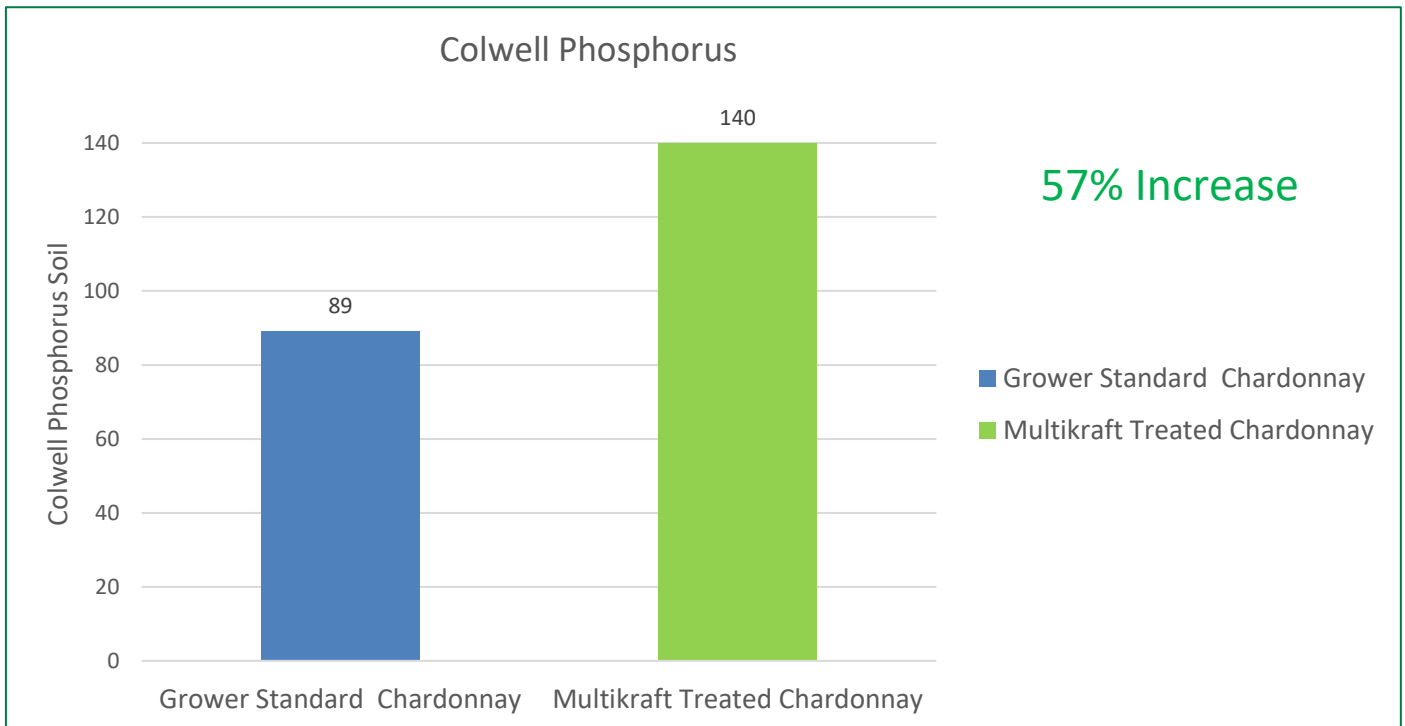


3. Grower Standard (including Chlorothalonil x 2 [EL12+EL17], Switch [EL19], Intervene x 2 [EL19+EL33], Amistar [EL31]).



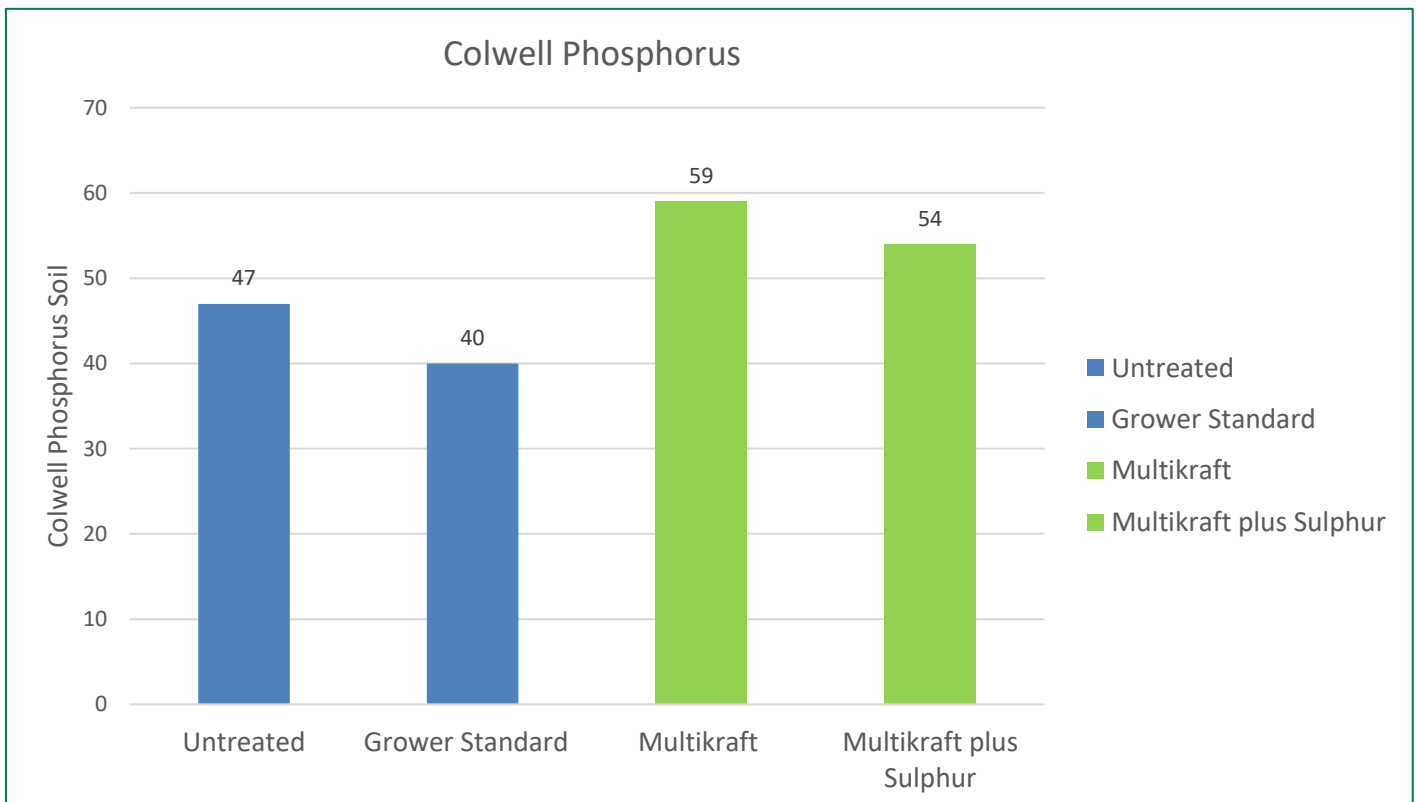
Soil Samples Chardonnay – Commercial blocks

Soil sample taken at veraison 10th February 2023



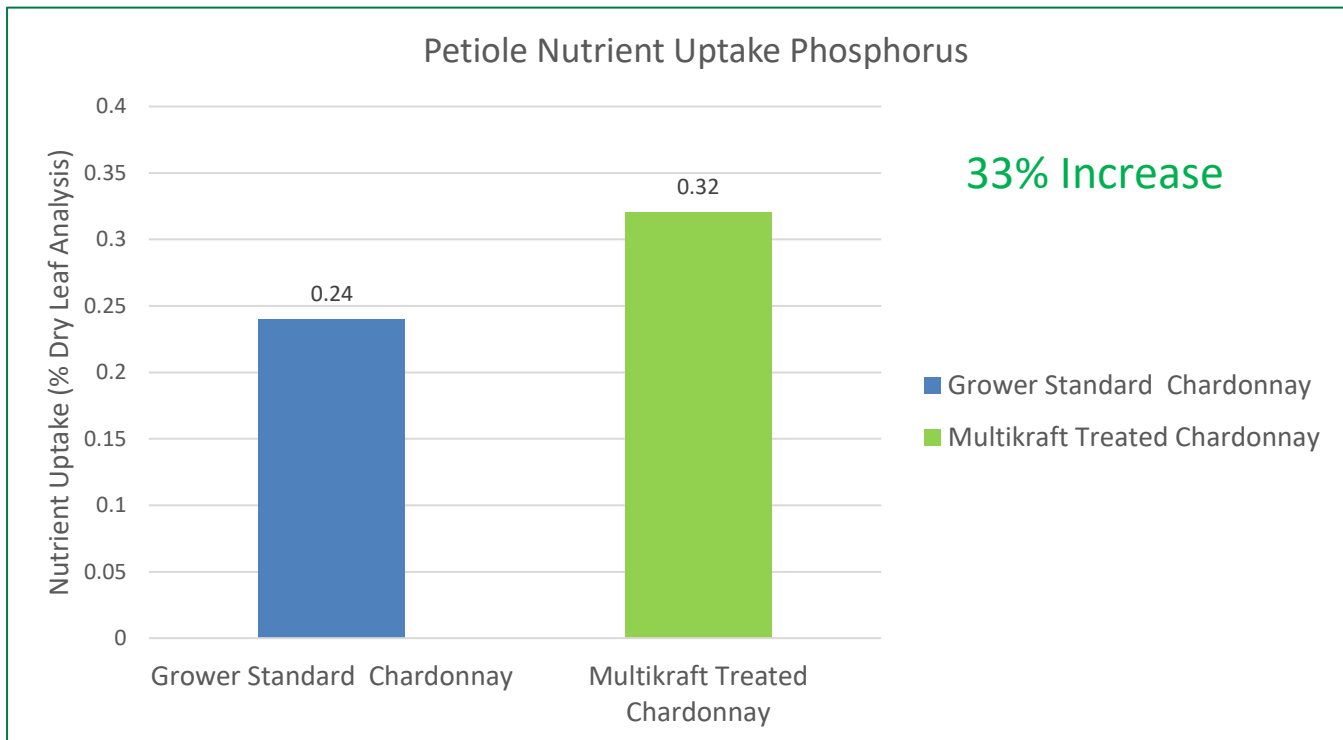
Soil Samples Chardonnay – Kaylx Trial Replicates

Soil sample taken at veraison 10 February 2023



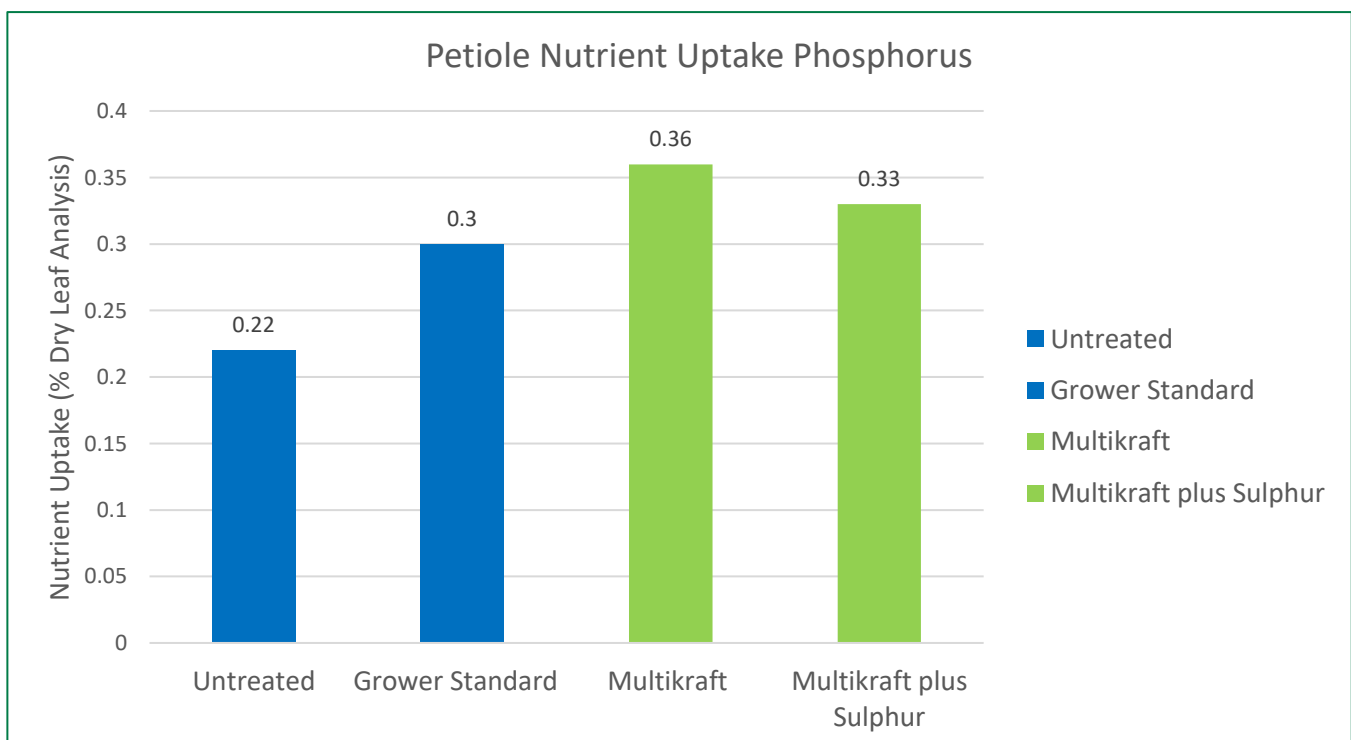
Petiole Samples Chardonnay – Commercial blocks

Leaf analysis taken at veraison 10th February 2023



Petiole Samples Chardonnay – Kalyx Trial Replicates

Leaf analysis taken at veraison 10 February 2023



Additional Observations – Pinot Colour

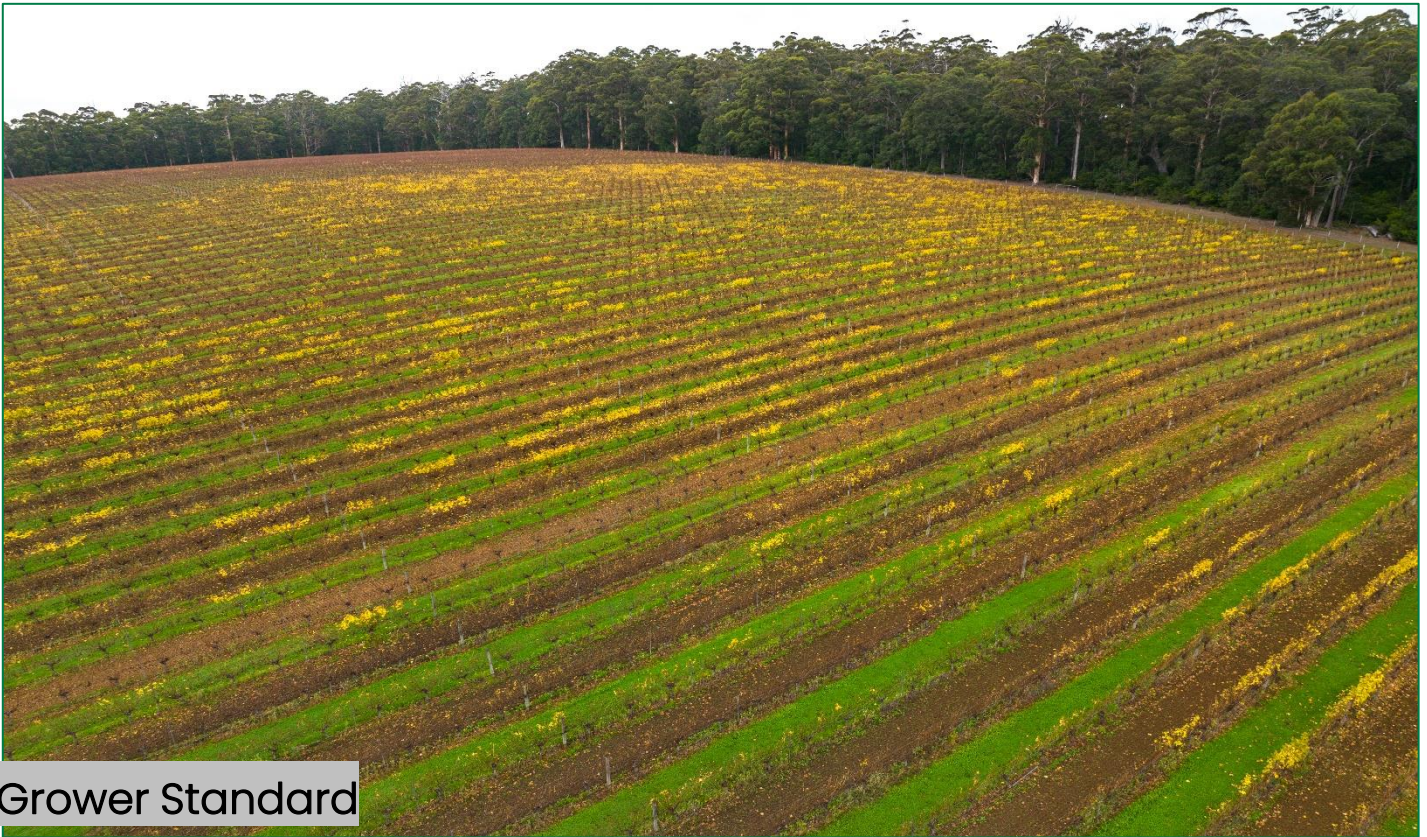
Images sent by the grower with his comments below:

- There was a noticeable colour difference observed between the same pinot clone from the different blocks.
- The sample on the right was treated with Multikraft which had a darker colour and better taste.
- The pictured samples were taken just after veraison (15.02.23) whilst doing bunch weight and pH samples.



Additional Observations – Sav Blanc Leaf Fall

Photos taken 29th May 2023



Additional Observations – Sav Blanc Leaf Fall summary

Photos taken 29th May 2023

- Observations were made referring to the leaf fall at the end of the season between 2 blocks of Sav Blanc. One was treated with Multikraft and the other was not.
- As demonstrated in the pictures, the one treated with Multikraft still has good leaf coverage and the leaf fall is very even.
- This gives the grape vines maximum opportunity to utilise all the nutrients from those leaves.
- The photo of the Sav Blanc Grower Standard that wasn't treated with Multikraft has had early leaf fall and isn't even across the block. The Grower stated that the leaf fall was too early.

